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ABSTRACT

This report synthesizes the evaluation results of forty-five federally funded K-12 career education programs. Although, according to the author, diversity in individual program goals and evaluation procedures made the synthesis difficult and inconclusive, the tabulated evaluations are used to provide a status report on career education's progress toward meeting its goals. This status report, organized around the ten learner outcome goals for career education released by the U.S. Office of Education, can be summarized by the following statements: Concerning competence in the basic academic skills, results are neither positive nor negative but significant in selected instances; concerning values that foster a desire to work, results show good evidence of success; concerning career decision-making skills, results indicate that these skills were consistently strengthened; concerning job specific occupational skills and interpersonal skills, results show that the first area is rarely evaluated and that evaluations of interpersonal skills are encouraging but inconclusive; concerning self-understanding and understanding of educational-vocational opportunities, no objective data of self-understanding were reported but career awareness was achieved in the overwhelming majority of cases; and concerning vocational follow-up and consistency of career decisions, evidence indicates that it is still too early to measure these factors. In all other areas results were either lacking or too sparse to be significant. (BM)



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WHAT DOES CAREER EDUCATION
DO FOR KIDS?

A Synthesis of 1975-76
Evaluation Results

June 1977

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Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title IX of the Education Amendments of 1972, Public Law 92-318, states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." Therefore, career education projects supported under Sections 402 and 406 of the Education Amendments of 1974, like every program or activity receiving financial assistance from the U.S. Department of Health, Education, and Welfare, must be operated in compliance with these laws.

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INTRODUCTION

Few educational movements have amassed so much evaluation evidence or have been so intensely scrutinized during their developmental phase as has the career education movement. By viewing a large body of program evaluation results *en masse* it is now possible to begin to draw some tentative conclusions regarding the impact the movement is having on various facets of student learning. It is premature to expect definitive results but the first tentative clues can be interpreted as encouraging to those committed to the improvement of American elementary and secondary education through the career education movement.

The Programs

The project of which this report is one product was designed to encompass 108 K-12 career education programs funded by the U.S. Office of Education during the 1975-76 academic year. Forty-seven of these programs were three-year projects funded through the Bureau of Occupational and Adult Education under Section 142(c), Part D of PL 90-576 (Part D), and whose federal funding terminated during 1976. Sixty-one programs had received one-year grants through the Office of Career Education (OCE) in accordance with Section 406, Title IV of PL 93-380. Eighty-one projects submitted their final performance and evaluation reports in time to be included in this review; 32 Part D and 49 OCE reports were read in their entirety and abstracted. Of these, 45 reports--26 Part D and 19 OCE--contained data concerning career education's impact on students which met the criteria for inclusion in this synthesis. This report deals with over 500 student outcome studies reported by these 45 programs.

All of the Part D programs included in this report were designed to encompass grades K-12 or K-14, and all OCE projects were in funding category 1: "Activities designed to effect incremental improvements in K-12 career education programs." Funding levels for the 1975-76 academic year ranged from \$81,851 to \$168,791 for the Part D programs and from \$12,500 to \$174,993 for the OCE programs.

These 45 career education programs shared some common traits. All involved the development of materials, the training of school staff, and the enlistment of the community's assistance in planning and/or implementing career education. All shared the goal of preparing individuals for participation in the world of work and appear to have embraced the basic definition, philosophy, and concepts of career education expressed in the USOE policy paper, *An Introduction to Career Education*.

There was, however, considerable variation among these programs in terms of their scope, intensity, and instructional strategies. Projects' service areas ranged from three schools to entire states. In some schools career education had been practiced for several years and the programs had pervaded nearly every facet of education while other schools were in the early planning stage, with only a handful of students experiencing career education activities.

The majority of programs professed to the infusion of career education into the school curriculum, but infusion took on many forms; some considered it to be any method a classroom teacher utilizes in teaching career education, others considered it commercial or locally-developed instructional units dealing with career education in relation to school subjects, and still others considered infusion a teaching style whereby career education concepts underly a major portion of instruction and eventually are conveyed with little conscious effort on the part of teachers. Regardless of how infusion is defined, it can involve any number of activities as

diverse as class discussions, field trips, counseling, library research, parent speakers, group projects, and filmstrips.

Career education courses and other special programs such as group counseling, unpaid work experience, and job placement also were implemented, sometimes as the major thrust of the school's career education program and at other times as a complement to classroom infusion. The activities comprising special programs, like those of classroom infusion programs, spanned a large spectrum.

The point is that these 45 career education projects, although in close agreement concerning the goals of career education, developed a large variety of strategies to meet those goals and implemented the strategies to widely varying degrees. At one point it was hoped that this report would provide evidence of the relative effectiveness of various career education implementation strategies, but it was soon found that this could not be accomplished on the basis of final reports. The programs were so diverse that placing them into a manageable number of reasonably homogeneous categories would have been difficult in any event and compounding the problem were many reports which did not describe the student activities whose impact were assessed or which did so only sketchily. Thus, this report concerns itself with evidence of the impact on elementary and secondary students of "career education" defined in its broadest sense and these synthesized evaluation results should be construed as neither a confirmation nor a denial that any given approach to career education is effective.

*Procedures**

The unit of analysis was the outcome *study*, defined as the assessment of one outcome objective at one grade level. An evaluation investigating a K-12 program's impact on reading achievement, work attitudes, and career

*

A more detailed report of the criteria used in analysis and synthesis may be obtained from New Educational Directions.

knowledge at each of grades 4, 8, and 12 would consist of nine studies. Every reasonable attempt was made to adhere to this unit of analysis according to this definition, but the diversity of evaluation designs made some deviations from these rules necessary. Very often two tests or two scales of a test measuring the same outcome were administered to the same students. Unless the tests or scales were combined for analysis in the evaluation report, they were treated as two studies. The reverse situation also occurred, where the scales of a test could have been categorized under multiple outcomes, but only the total results were presented; in this case the study was classified in the test's most predominant outcome. If an outcome objective common to two distinctively different student programs at a given grade level was evaluated, the two studies were counted separately, but if results were analyzed separately by classrooms or schools and no differences in the programs were noted, the results were summed across schools or classrooms and considered a single study so that no single project would be given an artificially large weight in syntheses. Some evaluations included several grade levels in a single group, resulting in one study where there might have been more.

Even where multiple analyses of a single set of data were reported, only one analysis was synthesized--the one judged as representing the most conclusive research design. If, for example, career education and comparison groups both were tested on a pre-post basis, analyses of post-test differences between groups was given priority over analyses of pre-post growth in the career education group.

Since the intent was to incorporate the full body of student impact evaluation results contained in reviewed reports, rigid criteria for inclusion were not placed on studies' designs. Indeed, the only criteria were that: 1) The report provided sufficient information about the

measurement instrument for determining which outcome the study addressed; 2) The report indicated which of four grade-level groupings the students represented; 3) The outcomes of the career education group were compared to some reference group, usually the same group's pre-test scores or a comparison group within the project's service area. (Studies involving a single testing of a single group were not included in syntheses, although several studies of this type will be discussed); 4) The report indicated the direction of differences between means--that is, whether students scored higher before or after career education or whether the career education students scored higher or lower than the comparison students. There was no requirement that results be analyzed inferentially nor that the number of students, the sampling plan, or the students' career education activities be identified.

The Ten Outcome Goals

The presentation of evaluation results is organized around the ten learner outcome goals for career education released by the USOE in the summer of 1976. These ten outcomes are a revision of the nine goals identified in *An Introduction to Career Education* of 1974. Although the newer ten outcomes were not available at the time these evaluations were conducted, they are used here to make this report compatible with the career education movement's present and future directions.

The revisions consisted of rewording the original nine outcomes to clarify their meaning and to enhance their measurability and of adding a tenth goal which was not included previously; thus, assigning evaluation results to the ten new outcomes does not jeopardize the integrity of evaluations of OCE projects. Part D projects operated under a set of policy guidelines established by the Bureau of Occupational and Adult Education which are similar in substance to OCE's goals, although they do not address all ten outcomes. Whereas the assignment of Part D evaluation results to the ten learner outcome goals may pose conceptual problems

this approach presented no operational difficulties because OCE and Part D evaluations tended to focus on the same student attributes and to involve the same measurement instrument.

It should be pointed out that neither OCE nor Part D programs were required to design their evaluation around the learner outcome goals or to address all ten goals in their evaluations. Evaluation results are scarce for some of the outcomes, but this does not indicate any discrepancies between federal policy and programs' practices.

Several of the ten outcomes are subdivided and discussed in two separate sections. For example, goal 4, "equipped with career decision-making skills, job-hunting skills, and job-getting skills" is discussed in separate sections for career decision-making skills (4a) and job hunting/getting skills (4b).

In some cases the relationship between a learner outcome goal and the student attributes which actually were measured in association with the goal is tenuous at best. Goal 2, for example, is that students will possess good work habits upon completion of their formal education, but most of the studies assigned to this goal measured attitudes toward learning and/or school. There are at least three reasons for such indirect relationships between outcome goals and measured outcomes. First, the OE learner outcome goals are concerned with the individual at the point where he/she leaves school, whether this point occurs at the end of eighth grade or at the conclusion of post-doctoral study. A K-12 career education program may choose to strive for students' attainment of the goals upon graduation from high school, but typically would set intermediate objectives for younger students which lead toward the ultimate goal and would evaluate progress in terms of these intermediate objectives. Second,

these OCE and Part D programs were encouraged to set their own objectives and were not restricted to objectives bearing clear relationships to federally-established outcome goals. Thus, it was perfectly legitimate for a program to establish "improved attitudes toward school" as an objective whether or not this relates to an OE-endorsed goal. Finally, measurement of career education outcomes is a large and widely-recognized problem. Some outcomes do not lend themselves to valid and reasonably inexpensive measurement techniques and perhaps never will be measured to our full satisfaction; "self-understanding" is an example of such an outcome. Other outcomes may be measurable, but the demand for instruments measuring them is so recent that high-quality instruments are not yet generally available. Thus, we must settle for the time being with what we have and this often results in the measurement of only some of the attributes constituting a larger domain, such as the assessment of self-esteem in lieu of self-understanding.

So that evaluation results synthesized herein will not be construed as direct measures of each learner outcome goal, and because the assignment of instruments to outcome was a subjective process, measurement instruments associated with each goal are listed in Appendix A and discussed within the text in terms of the student attributes they appear to measure.

Explanation of Tables

For most of the outcomes there was a sufficient number of studies to tabulate summary results as seen on page 16. Since these tables are labelled in an over-simplified manner, they are clarified below.

Outcome. The OE learner outcome is written verbatim. For subdivided outcomes, the section pertaining to the table is italicized and/or the outcome is clarified in parenthesis. It should be kept in mind that the list of outcomes is preceded by: "Career Education seeks to produce individuals

who, when they leave school (at any age or at any level) are:"

Number of projects assessing outcome refers to the number of projects which generated tabulated evaluation results.

Approximate number of students involved in assessments. Since all evaluation reports did not include this information, estimation procedures were needed for some studies. The totals across studies are rounded to the nearest hundred.

Number of studies. The total number appears at the right. In addition, all studies and their results were categorized along three different dimensions: grade level, design, and sampling.

Grade level categories are K-3, 4-6, 7-9, and 10-12 for all outcomes except the first (basic skills) which has a K-12 category to accommodate a study spanning these grade levels. The majority of studies were conducted at grades 3, 6, 9, and 12, but other grade levels also were assessed. In some cases students from two or more grade levels were included in a single evaluation group; where these groupings crossed categories, the study was placed in the grade level grouping representing the majority of students involved in the study.

Design. Studies were categorized by design in terms of the question answered by their results rather than strictly according to the data which were collected or the analyses which were applied. *Pre-post without comparison* studies addressed the question, "Do students perform better (or differently) after career education than they did before career education?", and generally involved a *t*-test for correlated samples comparing post-test results to the same students' pre-test scores. The lapse between testing dates ranged from six weeks to nearly three years, but for the bulk of these studies the lapse was about six months.

The question associated with *post with comparison* studies is, "After career education, do students perform differently from other students?", whereas *pre-post with comparison* studies concern the question, "After career education, do students perform differently from other students who are known to be similar to the career education students?" Typically, the former design involved a *t*-test for independent groups and the latter the analysis of covariance, but the criterion in distinguishing between the two was that pre-post with comparison studies presented *quantitative* evidence that the comparison and career education groups were equivalent on one or more educationally-relevant dimensions besides grade level. For example, several studies categorized as pre-post with comparison involved only the post-testing of career education and comparison groups, but IQ scores were used to control for random differences on this dimension.

Each design has its strengths and weaknesses. Studies using the pre-post without comparison design tell us whether improvement has taken place, but do not indicate what influences maturation or other factors besides career education may have had on the results. Studies involving comparison groups can yield positive results even if no changes occur in the career education group from the beginning to the end of the program, but since they provide an estimate of where the students would be without career education, any differences between groups can be attributed to career education more defensibly than can pre-post changes in a single group. Where there is evidence that the career education group is like the comparison group, we can assume that any differences between the groups' performance after career education are due neither to the differences between students before the program nor to normal maturation but rather to differences between the groups' experiences.

Sampling. In the majority of cases students involved in impact assessments were chosen randomly from districts or schools which participated in the project's activities. Even if all staff members of "participating" schools or districts were involved in inservice training, it is highly unlikely that all students experienced comparable career education; indeed, some students may have received none at all. The sampling plan of such studies where large variations were allowed in the amount and type of career education exposure of students in the "career education" group is called *randomly selected* whether or not samples were drawn on a literally random basis.

Other studies involved students who were known to have experienced career education of a fairly uniform amount and type. Usually this was done by testing students in one or more classrooms where career education was taught, either as a career education course or through curriculum infusion. In these studies all career education students were *identified as treated*. For a study's sampling plan to be placed in this category it was not necessary that the treatment be described, only that assurances be given that all students had participated in the same program or in similar programs.

Number of studies with positive results wignificant at the .05 level. Since evaluation reports rarely state whether statistical tests were one- or two-tailed, we must assume that both types are included in these data. For many studies counted in these sections, the probability that differences were due to chance alone was much less than .05, but they are not identified separately.

In the parentheses after the actual number of studies is the percentage showing positive results at the .05 level or better. These percentages are based not on the total number of studies, but on the total number minus the number with positive results but with no statistical test of significance. Thus, percentages represent the number of studies in the

category which showed positive and significant results as a proportion of studies where the significance level was determined and/or where negative differences were found.

Incidentally, several studies are synopsized in the discussion of each outcome. Where references are made to statistical significance, the confidence level was 95 percent or higher.

Number of studies with positive differences between means. For pre-post without comparison group designs a positive difference means that average performance on the post-test was superior to that on the pre-test. For comparison group designs positive differences occur when the career education group out-performs the comparison group. Adjusted post-test means were compared where the analysis of covariance was applied but in a few pre-post with control studies which were analyzed with statistics other than the analysis of covariance, differences between groups in the amount of growth between pre- and post-testing were compared.

Data in these sections refer only to the *direction* of differences; differences may or may not be statistically significant. Percentages indicated in parentheses are based on the total number of studies in the category.

Probability that positive and negative differences are equally likely. Purely by chance, we would expect 50 percent of studies to result in positive differences between means and 50 percent in negative differences. If, however, the career education implemented by these projects influences a given student outcome and if their evaluation designs and instruments are sensitive to those influences, we would expect more or fewer than 50 percent positive results, depending on whether career education is beneficial or detrimental to student achievement in the outcome. If we conducted 100 studies and 53 showed positive differences between means, it would be reasonable to assume that if we conducted enough studies, half of them

would show positive differences. But if 85 of 100 studies showed positive differences it would seem unlikely that conducting more studies would result in only 50 percent positive differences and we would be inclined to believe that there is a reason for these extreme results and that the reason is probably career education.

This section in the table indicates whether significantly more or fewer than half of the studies in each category yielded positive differences between means. Two-tailed binomial tests were applied to the tabulated data for "number of studies" and "number of studies with positive differences between means" to determine whether it is reasonable to assume that essentially half of the studies resulted in positive differences. Where "NS" (not significant) is entered in the table, the combined results of studies included in the table give no reason to believe that career education had either a positive or a negative influence. Where a dash appears there were fewer than six studies in the category, not enough to apply a statistical test to the synthesized results. If the chances are less than one in ten that the results were essentially fifty-fifty, the probability level is entered. A "+" in parentheses indicates that overall, the studies show significantly positive results.

Appendix A consists of a list for each outcome of the measurement instruments used in synthesized studies. The number of studies showing positive results at the .05 level and the number of studies showing positive differences between means are defined as above and references for measurement instruments are given in Appendix B. Locally-developed instruments without titles are combined and listed "local unnamed".

The Most Conclusively Successful Programs

As indicated earlier, plans for rigorous attempts to identify career education programmatic factors which most often result in demonstrated student impact were abandoned early in the project. However, one analysis

was conducted in hopes of gaining some insight into the commonalities of the project sites with the most positive evaluation results.

At five sites positive results were significant at the .05 level for at least half of their studies. These evaluations represented both sampling techniques, all three research designs, and both commercial and locally-developed instruments. All five programs employed the infusion approach at the elementary level and two emphasized infusion at the secondary level as well, while the other three implemented special programs for junior and senior high school students. The operational nature of the various programs at the five sites varied considerably.

The only factor the five projects seemed to have in common was that all had been in operation at least three years. Four were in their third year of Part D funding and the fifth was an OCE project which had been funded through the state for the previous two years. Only one of the evaluations was designed to assess the impact of three years of student exposure to career education. However, all five sites had had two years to develop and improve their implementation strategies before the final year when these unusually positive results were obtained.

Implications of these Results for Career Education Evaluation

The evaluation results synthesized here can be used in improving career education measurement and evaluation design. Since the intent of this report is to communicate the results themselves, the topic of evaluation design will not be dwelled upon here. However, *The Design of Career Education Evaluations in 1975-76*, another publication in this series, discusses the results in terms of their implications for designing evaluations which are most sensitive to career education's impact on students.

GOALS 1a and 1b

COMPETENT IN THE BASIC ACADEMIC SKILLS REQUIRED FOR ADAPTABILITY IN OUR RAPIDLY CHANGING SOCIETY. (READING AND MATHEMATICS ACHIEVEMENT)

Since most projects which assessed reading achievement also investigated mathematical achievement, the outcomes will be discussed together although they are tabulated separately.

Measurement Instruments

All tests of basic skills were widely accepted standardized instruments as seen in Appendix A. Where test scales were indicated, total reading or total mathematics scores were analyzed.

Tabulated Results

Taken in combination, the 22 studies of reading and 21 studies of mathematics achievement provide no clear indication that career education either helps or hinders the attainment of basic skills. Reading achievement studies more often showed negative than positive differences, but binomial tests applied across studies substantiate the hypothesis that overall, positive and negative differences between means were equally likely in both reading and mathematics.

Perhaps the most encouraging results in the basic skills area were shown by a Part D program in Opelika, Alabama (2), where the infusion of career education into the curriculum involved all teachers and affected all students in the school system. In the spring of 1973 and again in the spring of 1976, all of the approximately 350 students in each of grades 3, 6, 8, and 9 were administered the reading and mathematics subtests of the appropriate levels of the California Achievement Test. In reading, system-wide average scores dropped a small but insignificant amount at grades six and nine but improved significantly at grades three and eight. The improvement at third grade was quite dramatic, with the

1976 third-graders' mean raw score (60.3) thirteen percent higher than that of 1973 third-graders (53.3). Mean scores in math improved at all four grade levels. Third, sixth, and eighth grade improvements were statistically significant and impressively large--thirteen percent at third grade, twelve percent at sixth grade, and twenty-two percent at eighth grade.

An OCE project in Newark, New Jersey (8) showed mixed but promising results of its elementary infusion program. Based upon grade equivalents of the total reading and total mathematics scores of fall administrations of Metropolitan Achievement Tests, each student's year-end grade equivalent was predicted. Actual year-end performance then was compared to expected performance at grades two through six. Only fifth-graders scored significantly higher than expected in reading; their anticipated average grade equivalent of 4.06 was exceeded by three months. Mathematics achievement was significantly higher than predicted at three grades--second, fourth, and fifth. The difference between actual and predicted achievement levels ranged from two months at fifth grade to eight months at second grade.

In Cumberland Center, Maine (5) a sixth-grade teacher's students in 1973-74, before he became involved in career education, were compared through a pre-post with comparison design to his 1974-75 class, where career education was heavily infused into the classroom curriculum. The two classes' achievement at the beginning of seventh grade did not differ significantly in mathematics, but the career education group's reading achievement was superior to the comparison group's; their gain from September of sixth grade to September of seventh grade was nearly double that of the comparison group.

TABLE 1a

Synthesis of Evaluation Results¹

Outcome 1a: Competent in the Basic Academic Skills Required for Adaptability in our Rapidly Changing Society (*reading achievement*)

Number of projects assessing outcome 6

OCE: 4 Part D: 2

Approximate number of students involved in assessments 4000

As treatment group: 2500 As comparison group: 1500

Number of studies 22

Grade Level	Design	Sampling
K-3: 7	Pre-post w/o comp: 0	Identified as treated: 18
4-6: 8	Post w/comp: 5	Randomly Selected: 4
7-9: 5	Pre-post w/comp: 17	
10-12: 1		
K-12: 1		

Number of studies with positive results significant at the .05 level² 4 (18%)

K-3: 1 (14%)	Pre-post w/o comp: --	Identified as treated: 2 (11%)
4-6: 2 (25%)	Post w/comp: 2 (40%)	Randomly Selected: 2 (50%)
7-9: 1 (20%)	Pre-post w/comp: 2 (12%)	
10-12: 0		
K-12: 0		

Number of studies with positive differences between means³ 9 (41%)

K-3: 3 (43%)	Pre-post w/o comp: --	Identified as treated: 7 (38%)
4-6: 4 (50%)	Post w/comp: 3 (60%)	Randomly Selected: 2 (50%)
7-9: 2 (40%)	Pre-post w/comp: 6 (35%)	
10-12: 0		
K-12: 0		

Probability that positive and negative differences between means are equally likely NS

K-3: NS	Pre-post w/o comp: --	Identified as treated: NS
4-6: NS	Post w/comp: NS	Randomly Selected: --
7-9: NS	Pre-post w/comp: NS	

¹See page 7 for a clarification of the table.

²The number of studies with positive differences but no test of significance was subtracted from the denominator in calculating percentages.

³Percentages based on the total number of studies.

TABLE 1b

Synthesis of Evaluation Results¹

Outcome 1b: Competent in the Basic Academic Skills Required for Adaptability
in our Rapidly Changing Society (*mathematical achievement*)

Number of projects assessing outcome. 6

OCE: 5 Part D: 1

Approximate number of students involved in assessments. 3900

As treatment group: 2400 As comparison group: 1500

Number of studies 21

Grade Level	Design	Sampling
K-3: 6	Pre-post w/o comp: 0	Identified as treated: 17
4-6: 8	Post w/comp: 4	Randomly Selected: 4
7-9: 5	Pre-post w/comp: 17	
10-12: 1		
K-12: 1		

Number of studies with positive results significant at the .05 level². 6 (32%)

K-3: 2 (40%)	Pre-post w/o comp: --	Identified as treated: 3 (20%)
4-6: 3 (43%)	Post w/comp: 3 (75%)	Randomly Selected: 3 (75%)
7-9: 1 (20%)	Pre-post w/comp: 3 (20%)	
10-12: 0		
K-12: 0		

Number of studies with positive differences between means³. 11 (52%)

K-3: 4 (67%)	Pre-post w/o comp: --	Identified as treated: 8 (47%)
4-6: 4 (50%)	Post w/comp: 4 (100%)	Randomly Selected: 3 (75%)
7-9: 2 (40%)	Pre-post w/comp: 7 (41%)	
10-12: 0		
K-12: 1 (100%)		

Probability that positive and negative differences between means are equally
likely NS

K-3: NS	Pre-post w/o comp: --	Identified as treated: NS
4-6: NS	Post w/comp: --	Randomly Selected: --
7-9: NS	Pre-post w/comp: NS	

¹ See page 7 for a clarification of the table.

² The number of studies with positive differences but no test of significance was subtracted from the denominator in calculating percentages.

³ Percentages based on the total number of studies.

Other Results

A number of evaluations involved asking teachers whether they had noticed any influence of career education on their students' academic growth. Teachers often reported positive influences but their observations usually were not documented or analyzed. However, one interesting analysis of anecdotal data was carried out in Rockford, Illinois (3). Interviews were conducted with eleven elementary teachers rated by their principals as highly active in the infusion of career education into their instruction. The interview guide was designed around the objectives of the academic curriculum and included a number of specific questions such as, "Has any student shown improvement in the ability to read new words by analyzing word structure which you would attribute to career education?" If the teacher answered "yes", he/she was asked to cite a specific instance. Interviews were taped and later judged. Fifty-nine good examples of career education's benefits were identified, where the criteria for a good example were: "1) Observations of specific behavioral changes were made; 2) The improvement was of an enduring or permanent nature; 3) Specific kinds of activities to which the change could be attributed were identified; 4) The teacher was fairly confident in attributing the change to career education, at least in part, rather than to any number of other educational factors." The strongest impact was noted in reading, writing, speaking, and listening; few examples related to mathematics skills were cited.

Conclusions

The 43 objective studies of career education's impact on reading and mathematics achievement provide no support for the sometimes-stated contention that academic achievement suffers when career education is introduced into the curriculum, nor do they demonstrate that career

education consistently results in higher academic achievement. However, since in selected instances the evidence of positive impact is rather compelling, it would seem premature to conclude that career education has no potential for stimulating basic skills achievement.

It is disappointing that only seven programs undertook objective investigations of their influence in this area. As career education programs grow in sophistication and intensity, we may find this goal--perhaps career education's most challenging one--attained and documented more frequently than in the past.

GOAL 2

EQUIPPED WITH GOOD WORK HABITS

Measurement Instruments

All studies synthesized in Table 2 concerned students' attitudes toward school and/or learning. The instruments deal largely with the youngster's general feelings about being in school. Typical questions of this type are:

Is school a happy place?

- a. yes
- b. no

(Self Observation Scales)

I would like to drop out of school.

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

(Self Appraisal Inventory)

Other questions address the student's perceptions of him/herself in the role of student of his/her motivation to perform well in school.

I find it hard to talk in front of class.

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

(Self Appraisal Inventory)

I want to be a very good student.

- a. yes
- b. no

(Self Observation Scales)

Student perceptions of the importance and relevance of school also were addressed:

Do you learn things in school that will help you get a job?

- a. yes
- b. no

(Career Orientation Battery)

Since most instruments assigned to this outcome are scales of self-concept tests, the first two types of questions carried far heavier weight in evaluation results than did "school relevance" items.

Tabulated Results

Summary analyses indicate no generalized effect of career education on attitudes toward school as measured by these instruments, although results of studies where all students in the career education group are known to have experienced career education are more encouraging than the others.

A study showing positive significant results of a program in southwestern Indiana (4) demonstrates one kind of influence career education can have on attitudes toward school. Third-graders in comparison classes and in classes where career education was heavily infused were administered the Career Orientation Battery in early fall and again in late spring. The analysis of covariance results showed that in the spring career education students held more positive attitudes toward school than did comparison students, but examination of mean scores reveals that both groups' attitudes declined during the course of the year. Career education did not result in improvement *per se*, but rather retarded the erosion.

It seems that attitudes toward school usually decline during third grade, but rise somewhat during sixth grade. Seven pre-post without comparison studies were conducted in each of these grades; third graders' scores dropped in six cases while sixth graders' improved in five cases.

Other Results

In Newark, New Jersey (8) 19 elementary teachers who incorporated career education into their instruction assessed student behavior in their classroom with the General Classroom Environment Index. At the year's end, classroom behavior had improved significantly over October ratings.

The same project was the only one which investigated the effects of career education on school attendance. The attendance records of second

TABLE 2

Synthesis of Evaluation Results¹

Outcome 2: Equipped with Good Work Habits (*attitudes toward school*)

Number of projects assessing outcome 17

OCE: 6 Part D: 11

Approximate number of students involved in assessments 4700

As treatment group: 3400 As comparison group: 1300

Number of studies 45

Grade Level	Design	Sampling
K-3: 16	Pre-post w/o comp: 15	Identified as treated: 8
4-6: 18	Post w/comp: 8	Randomly Selected: 37
7-9: 7	Pre-post w/comp: 22	
10-12: 4		

Number of studies with positive results significant at the .05 level². 4 (10%)

K-3: 1 (7%)	Pre-post w/o comp: 0	Identified as treated: 3 (38%)
4-6: 0	Post w/comp: 1 (13%)	Randomly Selected: 1 (3%)
7-9: 2 (50%)	Pre-post w/comp: 3 (14%)	
10-12: 1 (25%)		

Number of studies with positive differences between means³. 20 (44%)

K-3: 6 (38%)	Pre-post w/o comp: 6 (40%)	Identified as treated: 4 (50%)
4-6: 8 (44%)	Post w/comp: 4 (50%)	Randomly Selected: 16 (43%)
7-9: 4 (57%)	Pre-post w/comp: 10 (45%)	
10-12: 2 (50%)		

Probability that positive and negative differences between means are equally likely NS

K-3: NS	Pre-post w/o comp: NS	Identified as treated: NS
4-6: NS	Post w/comp: NS	Randomly Selected: NS
7-9: NS	Pre-post w/comp: NS	
10-12: --		

¹ See page 7 for a clarification of the table.

² The number of studies with positive differences but no test of significance was subtracted from the denominator in calculating percentages.

³ Percentages based on the total number of studies.

to eighth-grade career education students were compared to their attendance during the previous year, before career education was introduced into the schools. In two of fourteen classes attendance improved significantly, but the general trend was toward more absences the second year, when the students were a year older.

Conclusions

Tests of general sentiments regarding school seem to be insensitive to any impact career education may have on attitudes toward school and education. It is quite possible, though, that career education programs are causing one kind of change but attempting to measure another kind. That is, it seems that career education is interested in making school relevant to the student's present and future needs and in pointing out the relevance that always has existed, as well as in making school more pleasant and enjoyable, but evaluations have focused almost exclusively on the latter.

Data concerning career education's success in equipping youngsters with good work habits are meager in these reports, but the results of the single study addressing classroom behavior are very encouraging.

There are two appropriate directions future efforts in assessing work habits may take. Direct behavioral measures of work habits probably would yield the most meaningful implications for the goal as it is stated. Although attitudes toward school should not be confused with work habits, there appears to be consensus that their improvement is an appropriate objective for career education. Measurement instruments may be more sensitive to progress toward this objective if they focused not only on whether the student likes school, but also on whether he/she sees a purpose to being there.

GOAL 3

EQUIPPED WITH A PERSONALLY MEANINGFUL SET OF
WORK VALUES THAT FOSTER IN THEM A DESIRE TO WORK

Measurement Instruments

The Attitude Scale of Crites' Career Maturity Inventory was used in the majority of studies assigned to this outcome. Although the scale has been described as a measure of attitudes toward work, its author more precisely defines its dimensions as including involvement in and conceptions of the career choice process, independence in decision-making, orientation toward work, and work values.

Some example true-false items are:

I guess everybody has to go to work sooner or later, but I don't look forward to it.

I'm not going to worry about choosing an occupation until I'm out of school.

Work is worthwhile mainly because it lets you buy the things you want.

I want to really accomplish something in my work--to make a great discovery or earn a lot of money or help a great number of people.

This goal is intended to convey career education's recognition that there are many reasons for working and that no single set of reasons (such as those commonly referred to as the Protestant Work Ethic) should be imposed on the individual by the educational system. Rather, the student should be exposed to a broad range of work values and encouraged to make personal decisions concerning which reasons are meaningful to him or her. Although no value judgement should be placed on these decisions, the sum of the individual's work values should constitute sufficient motivation to engage in productive activity. Thus, from a career education point of view it is legitimate to measure desire to work through questions with "right" and "wrong" answers, but measuring the work values underlying the desire to work is not so simple--saying one value is better than another is contrary to career education philosophy. What we could do is measure whether

valuing decisions have been made, how strong the individual's values are, how many values he/she possesses, or how diverse the work values of a group of students are.

It seems fair to say, though, that the results presented here indicate primarily students' desire to work. The diversity of values fostering the desire was measured to some extent, usually in the form of asking whether financial rewards are the *only* reason or whether personal satisfaction and service to others are *good* reasons. Although saying that questions of this type have "right" and "wrong" answers is philosophically incongruent with career education, the problem is probably not a serious one so long as these questions concern work values which are common to most facets of American society.

Tabulated Results

Summary results are encouraging, particularly for studies using "identified as treated" sampling plans. Although binomial tests did not show overall effects in all study categories, this result is due partially to the small number of studies in some categories.

It appears that the younger the students, the more successful career education has been in shaping the desire to work. This may be due to the relative flexibility of younger persons' views of work or to the commonly observed tendency for career education programs to be more fully developed at the lower grade levels; very likely, both of these factors influenced the trend.

One of the studies showing positive and significant results was a commercially-developed career education course taught in an Oklahoma junior high school (10); the remaining programs showing significant impact applied the infusion approach to career education.

TABLE 3

Synthesis of Evaluation Results¹

Outcome 3: Equipped with a Personally Meaningful Set of Work Values That Foster in Them a Desire to Work

Number of projects assessing outcome 20

OCE: 11 Part D: 9

Approximate number of students involved in assessments 4600

As treatment group: 3600 As comparison group: 1000

Number of studies 44

Grade Level	Design	Sampling
K-3: 3	Pre-post w/o comp: 24	Identified as treated: 15
4-6: 6	Post w/comp: 6	Randomly Selected: 29
7-9: 15	Pre-post w/comp: 14	
10-12: 20		

Number of studies with positive results significant at the .05 level² 5 (14%)

K-3: 1 (33%)	Pre-post w/o comp: 3 (19%)	Identified as treated: 4 (27%)
4-6: 2 (40%)	Post w/comp: 1 (17%)	Randomly Selected: 1 (5%)
7-9: 2 (17%)	Pre-post w/comp: 1 (7%)	
10-12: 0		

Number of studies with positive differences between means³ 30 (68%)

K-3: 3 (100%)	Pre-post w/o comp: 17 (71%)	Identified as treated: 13 (87%)
4-6: 5 (83%)	Post w/comp: 4 (67%)	Randomly Selected: 17 (59%)
7-9: 11 (73%)	Pre-post w/comp: 9 (64%)	
10-12: 11 (55%)		

Probability that positive and negative differences between means are equally likely <.02(+)

K-3: --	Pre-post w/o comp: <.1(+)	Identified as treated: <.01(+)
4-6: NS	Post w/comp: NS	Randomly Selected: NS
7-9: NS	Pre-post w/comp: NS	
10-12: NS		

¹ See page 7 for a clarification of the table.

² The number of studies with positive differences but no test of significance was subtracted from the denominator in calculating percentages.

³ Percentages based on the total number of studies.

Other Results

A program in inner-city Philadelphia (11) serving predominantly low income children emphasized classroom infusion and included films, field trips, and visits to a vocational school. The responses of about 100 sixth and seventh graders to an attitude questionnaire were remarkably positive:

"Questions covering student belief concerning the importance of work showed that more than 93 percent of the students felt that work was extremely important."

Through open-ended questions the students were asked to describe the difference between work and play and the things that are important to them.

"In all grades the words used to describe work were--'helping, responsibility, important, thinking or concentrating, pride and respect'. Interestingly enough, play was not always seen as the antithesis of work despite the statement of the question. Students noted that 'one should need an equal amount of each', the difference between work and play is 'None! One should make work into play', etc. . . . The question about things that were important to the student had the bulk of its answers concentrated around 'careers, job, responsibility, success, money' and fairly frequently, responses such as 'having someone depend on me, doing something for someone'. Answers in general related to achievement, learning, responsibility, and self satisfaction. Almost all the answers placed some emphasis on being of help, use or service to others. In all cases, these open ended questions were answered and seem to demonstrate an amount of maturity and self awareness couched in their own terms and belied both grade level and economic background."

Conclusion

The career education movement has demonstrated progress towards its goal of benefitting individuals and society alike by promoting positive attitudes toward work. Although evaluation results are not unanimously positive, it is clear that the goal of fostering a desire to work is attainable through existing career education practices. Less clear is whether increased desire to work stems from expanded or more personalized sets of work values, as this facet of the goal was not addressed directly in these evaluations.

GOAL 4a

EQUIPPED WITH CAREER *DECISION-MAKING*
SKILLS, JOB-HUNTING SKILLS, AND
JOB-GETTING SKILLS

Measurement Instruments

A variety of approaches have been taken in measuring career decision-making skills. One is to ask the student to select from a list of occupations the one most appropriate for an individual with given traits.

Peter has little interest in school. He would rather be on the move and has had some summer jobs that allowed him to travel. His last one took him across the country as a helper on a moving truck. Before that, he worked for the Department of Public Works, poisoning weeds along the roadside. As soon as he finishes school he wants to get a job that he can do right away.

Which one of the following occupations would be the best for him?

- a. carpenter
- b. animal keeper
- c. tree surgeon
- d. truck driver
- e. don't know

(Career Maturity Inventory)

Other items concern students' beliefs with respect to career planning or their knowledge of how to go about career planning, or things to consider in making career plans, and of how to overcome obstacles in their chosen career paths:

There is only one "right job" for a person in terms of his or her abilities.

- a. true or mostly true
- b. false or mostly false

(Assessment of Career Development)

Bob is interested in so many jobs he cannot make up his mind. He should:

- a. try out about as many of the jobs as he can
- b. try one and if he likes it, stick with it
- c. find out what to do by taking an ability test
- d. find out more about what each job is like

(Assessment of Career Development)

Which is more important to consider in choosing a future occupation?

- a. your sex
- b. your grades

(Career Orientation Battery)

Mike would like to open his own machine shop when he finishes technical school. *But*, he doesn't have the money to buy the equipment he needs.

What should he do?

- a. go into another occupation
- b. get a loan to buy the equipment
- c. work as a machinist for someone else
- d. open his shop and hope he gets enough business to buy what he needs
- e. don't know

(Career Maturity Inventory)

Still another common approach involves asking students which steps they have carried out in the process of career planning and preparation:

How much thinking and planning have you done for getting money for college or training?

- a. I have not given any thought to this.
- b. I have given some thought to this, but haven't made any plans yet.
- c. I have some plans, but am still not sure of them.
- d. I have made definite plans, but don't know how to carry them out.
- e. I have definite plans, and know what to do to carry them out.

(Career Development Inventory)

Tabulated Results

Positive differences between means resulted in 70 of 100 studies, which is sufficiently often to conclude with confidence that these positive results were not obtained by chance alone. On the other hand, pre-post without comparison designs weighed heavily in these results, raising the question of whether career education played an important part in improving career decision-making skills or whether maturation alone could account for these improvements. However, we have several reasons to believe that career education did influence these summary results.

First, results of studies including only identified treated students in the career education group were considerably more positive than studies where students were selected randomly from schools participating in career education projects. It is probably reasonable to assume that on the average, studies of the former type involved students who had been exposed to more career education than students selected at random. The single study in the

"identified as treated category" which did not result in positive differences between means involved high school seniors whose career education exposure was minimal. Second, statistically significant results were as likely in studies including comparison groups as in studies where a single group's growth was investigated. Finally, there were six studies where the career education group was identified as treated and the pre-post with comparison group design was applied; this combination of design factors could be considered the most conclusive. Two of these studies showed positive results significant at the .05 level and all but one showed positive differences between means (the twelfth grade study described above).

Typically, career education programs do not focus on career decision-making skills *per se* until the junior high level. Nonetheless, four of the five studies conducted at the elementary level showed promising results. Although career education appears to have an impact on career decision-making skills at the senior high level (10-12), success was more often noted in junior high (7-9). Again, it is impossible to say on the basis of these evaluation reports whether this is due to the students' age or to the programs' sophistication.

Conclusion

There is good reason to believe that career education can strengthen the career decision-making skills of students.

TABLE 4a

Synthesis of Evaluation Results¹

Outcome 4a: Equipped with *Career Decision-Making Skills*, Job-Hunting Skills, and Job Getting Skills

Number of projects assessing outcome 26

OCE: 11 Part D: 15

Approximate number of students involved in assessments 5400

As treatment group: 4500 As comparison group: 900

Number of studies 100

Grade Level	Design	Sampling
K-3: 0	Pre-post w/o comp: 64	Identified as treated: 18
4-6: 5	Post w/comp: 18	Randomly Selected: 82
7-9: 41	Pre-post w/comp: 18	
10-12: 54		

Number of studies with positive results significant at the .05 level² 23 (29%)

K-3: --	Pre-post w/o comp: 13 (32%)	Identified as treated: 13 (72%)
4-6: 2 (40%)	Post w/comp: 7 (39%)	Randomly Selected: 10 (17%)
7-9: 12 (35%)	Pre-post w/comp: 3 (17%)	
10-12: 9 (23%)		

Number of studies with positive differences between means³ 70 (70%)

K-3: --	Pre-post w/o comp: 50 (78%)	Identified as treated: 17 (94%)
4-6: 4 (80%)	Post w/comp: 10 (56%)	Randomly Selected: 53 (65%)
7-9: 33 (80%)	Pre-post w/comp: 10 (56%)	
10-12: 33 (61%)		

Probability that positive and negative differences between means are equally likely <.001(+)

K-3: --	Pre-post w/o comp: <.001(+)	Identified as treated: <.001(+)
4-6: --	Post w/comp: NS	Randomly Selected: <.01(+)
7-9: <.001(+)	Pre-post w/comp: NS	
10-12: <.1(+)		

¹ See page 7 for a clarification of the table.

² The number of studies with positive differences but no test of significance was subtracted from the denominator in calculating percentages.

³ Percentages based on the total number of studies.

GOAL 4b

EQUIPPED WITH CAREER DECISION-MAKING SKILLS
JOB-HUNTING SKILLS, AND JOB-GETTING SKILLS

Results

Only six studies were reported for this outcome.

The measurement instrument for three studies was the job-seeking skills scale of the Career Orientation Battery, which measures knowledge pertaining to job-seeking through true-false questions such as: "All job openings in a town are advertised in the local newspaper" and, "During a job interview you should keep your answers as short and to the point as possible." No significant results were shown in any of these three studies. The New Mexico Job Application Procedures test, used in two studies, yielded higher post-test than pre-test scores in both cases but the differences were not significant. However, in none of these five studies was there reported evidence that the career education program included activities designed specifically to develop job-seeking skills.

Simulated job interviews demonstrated the success of a high school program in Pontiac, Michigan (7) consisting of career education courses and work experience. Twelve program and eleven comparison group students were interviewed by an independent judge. Nine of ten individuals who were "hired" had participated in the career education program; a chi-square test confirmed the statistical significance of the results.

Conclusions

Although only one of six studies showed significant results, it would be unreasonable to conclude that attempts to teach job hunting and getting skills are generally unsuccessful. For some reason this goal has received little attention in career education evaluation, even though secondary career education programs often focus on interview behavior, job application procedures, and sources of job opening information.

As more evaluation results pertaining to the outcome are generated from programs emphasizing this facet of career education, we may find that this goal is relatively easily attained as well as of considerable benefit to young people.

GOAL 5a

EQUIPPED WITH *JOB SPECIFIC OCCUPATIONAL SKILLS* AND
INTEPERSONAL SKILLS AT A LEVEL THAT WILL ALLOW THEM
TO GAIN ENTRY INTO AND OBTAIN A DEGREE OF SUCCESS IN
THE OCCUPATIONAL SOCIETY

Although job specific occupational skills may themselves be measurable, thorough assessment of this goal is extremely impractical.

One problem is that the goal is a highly individualized one, both in terms of the specific skills the student is expected to acquire and in terms of the point in time when he/she should attain them. To deal with the enormous number of occupations for which the students in career education program may be prepared would require an even larger number of measurement devices for the various skills needed in each occupation. Compounding these problems is the question of when to test for skills attainment. The goal does not require that all students possess marketable skills when they finish high school and does not apply to students who pursue further education until they complete post-secondary training.

An additional problem with measuring this goal is that paper and pencil testing would not suffice; direct measures of skills would be needed in many cases and this can be quite expensive.

Due to these problems and because evaluation needs in this area are partially fulfilled by evaluation systems of vocational education programs, the limited resources of career education evaluation are rarely invested in assessing this goal. A number of programs included in this analysis reported increased demand or expanded enrollment in vocational programs since career education was introduced to the district, but no attempt was made to synthesize results such as these.

GOAL 5b

EQUIPPED WITH JOB SPECIFIC OCCUPATIONAL SKILLS AND
INTERPERSONAL SKILLS AT A LEVEL THAT WILL ALLOW THEM
TO GAIN ENTRY INTO AND ATTAIN A DEGREE OF SUCCESS IN
THE OCCUPATIONAL SOCIETY

Measurement Instruments

The large majority of studies assigned to this outcome employed scales of self-concept tests concerning the student's perceptions of his/her ability to get along with others. Example items are:

I am always friendly toward other people.

- a. strongly agree
- b. agree
- c. disagree
- d. strongly disagree

Friends usually follow my ideas.

- a. strongly agree
 - b. agree
 - c. disagree
 - d. strongly disagree
- (Self Appraisal Inventory)

Another type of test assesses the student's ability to identify the most appropriate of several responses to a work situation such as:

Your boss has just given you a task that MUST be completed by the end of the week. You know from experience that it is impossible to do this job properly in so short a time. What would you do?

- a. Point out that you need someone else to help if you're to complete the job by the end of the week and still do a good job.
- b. Work as fast as possible and get the job done. Even though the quality of the work may not be the best possible, at least you will have met the deadline.
- c. Concentrate on doing quality work and hope it gets done in time. If by Thursday night it's obvious that you can't make the deadline, tell your boss.
- d. Inform the head of the department that your boss expects too much of you.

(Career Orientation Battery)

Tabulated Results

In only one study where the significance of difference between means was reported was the .05 significance level attained. Analyses across studies of the direction of differences between means are slightly more

encouraging, but since pre-post without comparison designs predominated in studies showing positive tendencies, the possibility remains that measured improvements also would have occurred without career education.

Other Results

In Pontiac, Michigan's (7) simulated job interviews described under Goal 4b, interviewers also rated each interviewee on eleven dimensions such as social poise, use of English, and personality. On all eleven dimensions career education students scored significantly higher than the comparison group.

Conclusion

Evidence concerning career education's effect on interpersonal skills is promising but inconclusive.

Behavioral measures similar to the simulated job interview may prove more fruitful than paper-and-pencil testing. One notable shortcoming of using self-concept scales to measure this outcome is that they tend to focus on extroversion and self-confidence in interpersonal relationships. Although these are essential traits for success in *some* occupations, we should perhaps give greater attention to assessing career education's impact on skills required in almost all occupations, such as the ability to work cooperatively with others.

TABLE 5b

Synthesis of Evaluation Results¹

Outcome 5b: Equipped with Job Specific Occupational Skills and *Interpersonal Skills* at a Level that will Allow Them to Gain Entry into and Attain a Degree of Success in the Occupational Society

Number of projects assessing outcome			19
OCE: 7	Part D: 12		
Approximate number of students involved in assessments			4200
As treatment group: 3300	As comparison group: 900		
Number of studies			41
<u>Grade Level</u>	<u>Design</u>	<u>Sampling</u>	
K-3: 10	Pre-post w/o comp: 17	Identified as treated: 10	
4-6: 17	Post w/comp: 9	Randomly Selected: 31	
7-9: 8	Pre-post w/comp: 15		
10-12: 6			
Number of studies with positive results significant at the .05 level ²			1 (3%)
K-3: 1 (14%)	Pre-post w/o comp: 1 (10%)	Identified as treated: 0	
4-6: 0	Post w/comp: 0	Randomly Selected: 1 (4%)	
7-9: 0	Pre-post w/comp: 0		
10-12: 0			
Number of studies with positive differences between means ³			25 (61%)
K-3: 6 (60%)	Pre-post w/o comp: 13 (76%)	Identified as treated: 5 (50%)	
4-6: 10 (59%)	Post w/comp: 5 (56%)	Randomly Selected: 20 (65%)	
7-9: 6 (75%)	Pre-post w/comp: 7 (47%)		
10-12: 3 (50%)			
Probability that positive and negative differences between means are equally likely			<.05(+)
K-3: NS	Pre-post w/o comp: .05(+)	Identified as treated: NS	
4-6: NS	Post w/comp: NS	Randomly Selected: <.1(+)	
7-9: NS	Pre-post w/comp: NS		
10-12: NS			

¹See page 7 for a clarification of the table.

²The number of studies with positive differences but no test of significance was subtracted from the denominator in calculating percentages.

³Percentages based on the total number of studies.

COAL 6a

EQUIPPED WITH A DEGREE OF *SELF-UNDERSTANDING* AND
UNDERSTANDING OF EDUCATIONAL-VOCATIONAL OPPORTUNITIES
SUFFICIENT FOR MAKING SOUND CAREER DECISIONS

Measurement Instruments

Self-understanding is probably the least measurable component of any of the goals, although its key role in the career decision-making process makes it at the same time one of the most important purposes of career education.

It would be presumptuous for a person (or a test) to attempt to judge the validity of another individual's perceptions of his or her own personal interests, goals, strengths, and values. Therefore, two basic directions have been taken in attempting to measure at least some of the variables that constitute self-understanding. The two approaches are so different that evaluation results of each are tabulated separately.

The first approach is to measure the degree to which the youngster holds a positive self image--that is, how well he/she likes or accepts him/herself. Typical questions used to measure self-esteem (and self-acceptance) are:

I don't read well 1 2 3 4 5 I read very well
(How I See Myself)

I have a lot of self-control.
a. strongly agree
b. agree
c. disagree
d. strongly disagree
(Self Appraisal Inventory)

Do you feel good about yourself most of the time?
a. yes
b. no
(Self Observation Scales)

Several studies classified as measuring self-esteem are based on two items of the Assessment of Career Development and relate to the student's optimism concerning his/her career.

Do you feel you will be able to complete all the necessary steps for at least one of the (previously identified) jobs?

- a. yes
- b. not sure
- c. probably not

Would you say that your job future is--

- a. bright?
- b. dark?
- c. uncertain?

The second approach taken in measuring self-understanding is seen in the Self Appraisal scale of the Career Maturity Inventory, where in each question several facts about a person are given and the student is asked to draw a conclusion from these facts:

Bucky is an explorer Scout and takes part in most of his troop's activities. He enjoys being outdoors and is looking forward to a canoe trip that they have planned. He has learned the names and markings of most of the birds in his area and is interested in nature. He has also been active in efforts to conserve the environment and thinks he'll study ecology in college.

What do you think?

- a. There is no doubt that he has the interest and ability to be an ecologist.
- b. He should discuss his interests with his scoutmaster and do what he suggests.
- c. His interest in nature is probably only a temporary one, and he shouldn't make plans based on it.
- d. His interest in ecology is developing, and he should follow it, but with the understanding that it may change later on.
- e. Don't know

The results of this scale appear in Table 6a₂.

Tabulated Results

There is one heartening note to the self-esteem results; at grades K-3, positive differences were found significantly more often than negative differences. Among older children there is no evidence that career education has a generalized influence on students' self-esteem, although the fact that the majority of studies showing significant results involved identified treated students could be interpreted as encouraging.

Results of the Career Maturity Inventory Self Appraisal scale, like those of self-esteem measures, show no overall effects in either direction.

TABLE 6a₁

Synthesis of Evaluation Results¹

Outcome 6a: Equipped with a Degree of *Self-Understanding* and Understanding of Educational-Vocational Opportunities Sufficient for Making Sound Career Decisions (*Self-Esteem*)

Number of projects assessing outcome 22

OCE: 8 Part D: 14

Approximate number of students involved in assessments 6500

As treatment group: 4900 As comparison group: 1600

Number of studies 87

Grade Level	Design	Sampling
K-3: 26	Pre-post w/o comp: 51	Identified as treated: 22
4-6: 35	Post w/comp: 19	Randomly Selected: 65
7-9: 20	Pre-post w/comp: 17	
10-12: 6		

Number of studies with positive results significant at the .05 level² 7 (9%)

K-3: 3 (15%)	Pre-post w/o comp: 5 (11%)	Identified as treated: 5 (23%)
4-6: 2 (6%)	Post w/comp: 1 (5%)	Randomly Selected: 2 (3%)
7-9: 2 (10%)	Pre-post w/comp: 1 (6%)	
10-12: 0		

Number of studies with positive differences between means³ 50 (57%)

K-3: 17 (65%)	Pre-post w/o comp: 33 (65%)	Identified as treated: 14 (64%)
4-6: 20 (57%)	Post w/comp: 8 (42%)	Randomly Selected: 36 (55%)
7-9: 11 (55%)	Pre-post w/comp: 9 (53%)	
10-12: 2 (33%)		

Probability that positive and negative differences between means are equally likely NS

K-3: <.1(+)	Pre-post w/o comp: NS	Identified as treated: NS
4-6: NS	Post w/comp: NS	Randomly Selected: NS
7-9: NS	Pre-post w/comp: NS	
10-12: NS		

¹ See page 7 for a clarification of the table.

² The number of studies with positive differences but no test of significance was subtracted from the denominator in calculating percentages.

³ Percentages based on the total number of studies.

TABLE 6a₂

Synthesis of Evaluation Results¹

Outcome 6a: Equipped with a Degree of *Self-Understanding* and Understanding of Educational-Vocational Opportunities Sufficient for Making Sound Career Decisions (*CMI Self-Appraisal*)

Number of projects assessing outcome 13

OCE: 8 Part D: 5

Approximate number of students involved in assessments 2500

As treatment group: 2100 As comparison group: 400

Number of studies 19

<u>Grade Level</u>	<u>Design</u>	<u>Sampling</u>
K-3: 0	Pre-post w/o comp: 15	Identified as treated: 1
4-6: 1	Post w/comp: 4	Randomly Selected: 18
7-9: 8	Pre-post w/comp: 0	
10-12: 10		

Number of studies with positive results significant at the .05 level² 2 (15%)

K-3: 0	Pre-post w/o comp: 1 (11%)	Identified as treated: 0
4-6: 0	Post w/comp: 1 (25%)	Randomly Selected: 2 (17%)
7-9: 2 (40%)	Pre-post w/comp: 0	
10-12: 0		

Number of studies with positive differences between means³ 11 (58%)

K-3: 0	Pre-post w/o comp: 8 (53%)	Identified as treated: 1 (100%)
4-6: 0	Post w/comp: 3 (75%)	Randomly Selected: 10 (56%)
7-9: 5 (63%)	Pre-post w/comp: 0	
10-12: 6 (60%)		

Probability that positive and negative differences between means are equally likely. NS

K-3: --	Pre-post w/o comp: NS	Identified as treated: --
4-6: --	Post w/comp: --	Randomly Selected: NS
7-9: NS	Pre-post w/comp: NS	
10-12: NS		

¹ See page 7 for a clarification of the table.

² The number of studies with positive differences but no test of significance was subtracted from the denominator in calculating percentages.

³ Percentages based on the total number of studies.

Conclusions

There is tentative evidence that career education tends to improve the self-esteem of young children; otherwise, evaluation results were positive only in isolated instances.

This should not be construed as evidence that career education does not develop self-understanding. Although a relationship between self-understanding and self-esteem is widely assumed, it may well be nonexistent or so small that measuring one tells us little about the other. As career education activities and programs are designed to encourage self-examination rather than self-admiration, we should not be disheartened by failure to demonstrate accomplishment of the latter.

It should also be kept in mind that this sub-goal has been taken out of context for the purpose of synthesizing evaluation results. Career education's aim in developing youngsters' self-understanding is to enable them to make sound career decisions and evaluation results in career decision-making skills (Goal 4a) were very positive. Thus, career education has demonstrated success in attaining the essence of this goal, even if evidence is lacking concerning one step of the decision-making process.

GOAL 6b

EQUIPPED WITH A DEGREE OF SELF-UNDERSTANDING
AND UNDERSTANDING OF EDUCATIONAL-VOCATIONAL
OPPORTUNITIES SUFFICIENT FOR MAKING
SOUND CAREER DECISIONS

Measurement Instruments

Tests used in conjunction with this outcome are fairly straight-forward measures of career knowledge. The bulk of test items address the characteristics of specific occupations of the traits and training required of individuals employed in particular occupations. For example:

List three skills that a chef and a carpenter have in common.
(Job Skills Test)

A landscape architect. . .
a. operates bulldozers and other types of earth moving equipment
b. designs the walls of buildings
c. draws city zoning maps
d. designs the layout of outdoor areas
(Assessment of Career Development)

A high school diploma is usually all that is needed to get a job as:
a. a clothing salesperson
b. an X-ray technician
c. a mining engineer
d. a home economist
(Assessment of Career Development)

Tests of occupational knowledge also include questions concerning job market trends and the nature of paid work:

The occupational fields expected to grow most rapidly during the next ten years are:
a. Professional and service
b. Sales and crafts
c. Crafts and clerical
d. Labor and sales
(Career Development Inventory)

It is illegal for any employer to pay less than the minimum wage set by the federal government.
a. true
b. false
(Career Orientation Battery)

Tabulated Results

Career education has demonstrated uncontestable success in bringing about an awareness of the work world. All in all, evaluation results were positive regardless of grade level, evaluation design, or sampling plan. Success is most consistent with young children, but even senior high school students have benefitted significantly from exposure to a variety of occupations. These results are particularly remarkable when we consider that occupational knowledge in most cases was measured through survey tests covering a broad span of occupations. That is, the student is not only learning more about the several occupations he/she has considered pursuing, but also of a multitude of other possibilities he or she otherwise may never have given thought to.

Conclusion

More than in any other outcome, career education has proven conclusively successful in developing understanding of career opportunities. These results, combined with those pertaining to decision-making skills, indicate that progress toward Goal 6 is being achieved on a broad scale.

TABLE 6b

Synthesis of Evaluation Results¹

Outcome 6b: Equipped with a Degree of Self-Understanding and *Understanding of Educational-Vocational Opportunities* Sufficient for Making Sound Career Decisions

Number of projects assessing outcome 34

OCE: 14 Part D: 20

Approximate number of students involved in assessments 14,200

As treatment group: 10,600 As comparison group: 3,600

Number of studies 167

Grade Level	Design	Sampling
K-3: 26	Pre-post w/o comp: 90	Identified as treated: 49
4-6: 32	Post w/comp: 42	Randomly Selected: 118
7-9: 52	Pre-post w/comp: 35	
10-12: 57		

Number of studies with positive results significant at the .05 level² 46 (34%)

K-3: 15 (71%)	Pre-post w/o comp: 23 (38%)	Identified as treated: 25 (58%)
4-6: 9 (38%)	Post w/comp: 12 (31%)	Randomly Selected: 21 (23%)
7-9: 15 (36%)	Pre-post w/comp: 11 (32%)	
10-12: 7 (15%)		

Number of studies with positive differences between means³ 125 (75%)

K-3: 21 (81%)	Pre-post w/o comp: 75 (83%)	Identified as treated: 39 (78%)
4-6: 25 (78%)	Post w/comp: 26 (62%)	Randomly Selected: 86 (73%)
7-9: 41 (79%)	Pre-post w/comp: 24 (69%)	
10-12: 38 (67%)		

Probability that positive and negative differences between means are equally likely <.001(+)

K-3: <.001(+)	Pre-post w/o comp: <.001(+)	Identified as treated: <.001(+)
4-6: <.001(+)	Post w/comp: <.1(+)	Randomly Selected: <.001(+)
7-9: <.001(+)	Pre-post w/comp: <.02(+)	
10-12: <.01(+)		

¹ See page 7 for a clarification of the table.

² The number of studies with positive differences but no test of significance was subtracted from the denominator in calculating percentages.

³ Percentages based on the total number of studies.

GOAL 7

AWARE OF MEANS AVAILABLE TO THEM FOR
CONTINUING AND RECURRENT EDUCATION

Only one study addressed this goal in a direct way. In Opelika, Alabama (2) about three hundred high school seniors were asked to name: 1) three institutions of higher learning that are within 200 miles of Opelika; 2) one technical or business school; and 3) two sources of financial support or additional career education. All students were able to answer the first two questions correctly and 89 percent succeeded on the third question.

In the sense that this goal refers to awareness of educational opportunities, it also was addressed in evaluations of career awareness (Goal 6b). The essence of this goal, however, is to instill the attitude that learning is a lifelong process. Whereas some measurement instruments may contain one or two questions pertaining to this concept, student responses to these particular items were not discussed in evaluation reports.

Goal 8

EITHER PLACED OR ACTIVELY SEEKING PLACEMENT
IN A PAID OCCUPATION, IN FURTHER EDUCATION
OR IN A VOCATION CONSISTENT WITH
THEIR CURRENT CAREER DECISIONS

A number of projects conducted follow-up studies of high school leavers from past-years. Results from these surveys, though meaningful at the local level, have little bearing on the success of the career education movement in producing individuals who are capable of pursuing their chosen career paths. The problem is that follow-up surveys conducted in 1976 were necessarily of the graduating classes of 1975 or earlier. Part D programs included in this report began in the 1973-74 school year, so the most formalized career education any respondent to follow-up questionnaires could have had was two years. This, coupled with the lag between grant notification and program implementation and the typical practice of developing secondary programs after the district's elementary program is established, means that 1975 graduates generally received very little career education exposure. The same principle applies to OCE programs, where career education in some cases had been ongoing for several years before OCE funding was received, but where students leaving school before 1976 rarely had been broadly exposed to career education.

Career education programs with placement components often reported data concerning the number of students who had been placed in paid or volunteer jobs, but no attempt was made to synthesize these results because the data were presented in a number of different forms and there was no way of determining whether students would have found work without the programs.

In short, it is too early to expect conclusive data concerning this outcome.

GOAL 9

ACTIVELY SEEKING TO FIND MEANING AND
MEANINGFULNESS THROUGH WORK IN PRODUCTIVE
USE OF LEISURE TIME

Only one program assessed its success in this outcome area, but the results of that study are very promising. In Carrollton, Alabama (1) the project staff administered the questionnaire, "How I Spend My Leisure Time". Afterwards sixteen teachers and four counselors conducted group and individual conferences on wise or productive use of leisure time with 620 students. Several months later the questionnaire was re-administered, revealing the following trends:

- * Forty percent of the students became involved in new volunteer services or hobbies.
- * Students utilized more time for school work and school related activities.
- * Students became more selective in using time to watch TV.
- * There were some indications that students gave more time to reading not directly related to their school work.
- * Students spent about the same amount of time at church per month.
- * Students used about the same amount of time per week for playing games.

GOAL 10

AWARE OF MEANS AVAILABLE TO THEMSELVES
FOR CHANGING CAREER OPTIONS--OF SOCIETAL
AND PERSONAL CONSTRAINTS IMPINGING ON
CAREER ALTERNATIVES

This is the new goal which does not appear in the original nine learner outcome goals and was added in response to the observation that the goals dealt almost entirely with teaching the individual to cope with society and that there was no mention of adjusting society to meet the individual's own needs. Thus, Goal 10 was incorporated into OE policy to demonstrate career education's concern for preparing individuals to overcome the obstacles society is likely to place in their paths as they strive toward their present and future career goals.

Even though this goal had not been set forth at the time these evaluations were conducted, we already have some evidence that career education has made progress in this area.

In Portland, Maine (6) and Newark, New Jersey (8) the Norwicki-Strickland Locus of Control Scale was employed in a total of seven studies assessing the impact of secondary career education programs. Positive differences between means were obtained in every case, suggesting that career education resulted in students' perceiving themselves as having control over themselves and their environments and as being less subject to control by external forces. In two of these studies, differences between means showed statistically significant tendencies toward internal and away from external control.

An additional study of locus of control was conducted at the elementary level and employed an experimental instrument newly developed by the program's evaluator. Comparison students scored slightly higher than career education's students, but the difference was not significant.

Career education programs also have worked toward the elimination of sex-role stereotyping, one of the most pervasive constraints impinging on career alternatives. Primarily because evaluation instruments are just now beginning to emerge, there has been little objective evaluation of this outcome.

Secondary students in Pontiac, Michigan's career education program (7) were asked to react to 52 jobs--24 male stereotyped, 24 female stereotyped, and 4 with no stereotype--on a five point scale ranging from "have not given thought" (to pursuing this career) to "have definite plans and know how to carry out" (my pursuit of this career). Separate scores were computed for each job category--male, female, and non-stereotyped. There were no significant differences between the boys' and girls' ratings of any job category, providing some evidence that, "experience in the program fosters a more objective view of jobs than is found in society at large."

In summary, evidence concerning Goal 10 is understandably sparse. However, the pertinent evaluation results which are available suggest that this goal is already being attained within the career education movement.

MIXED OUTCOMES

Nine projects incorporated into their evaluations studies which were well-designed but which employed measurement instruments whose items address a wide variety of career education outcomes--an even greater diversity of attributes than those measured by the various instruments which have been combined in synthesizing evaluation results pertaining to each of the ten outcome goals.

Measurement Instruments

Four items appearing in a single-scaled test designed for third graders in a program in New York (12) demonstrate the nature of instruments in this category:

At home you can use arithmetic to help:

- a. get along with brothers and sisters
- b. wash dishes
- c. check a grocery bill
- d. watch television

Raising your hand before speaking in class shows you are:

- a. smart
- b. neat
- c. considerate
- d. prompt

Which of these workers works mostly with people?

- a. salesperson
- b. firefighter
- c. gardener
- d. truck driver

By dividing classroom jobs among classmates:

- a. everybody is happy
- b. we share responsibilities
- c. we argue over jobs
- d. nothing gets done well

Most "mixed-outcome" tests were developed by program staffs, teachers, and/or evaluators and were designed to address the specific objectives of local career education efforts. Usually results from these tests were examined item-by-item for local purposes of evaluation and program improvement.

Tabulated Results

The incidence of statistically significant results was higher for tests of mixed outcomes than for any other. Similarly, positive differences between means were found in the majority of cases regardless of grade level, evaluation design, or sampling technique.

Conclusion

Career education programs generally achieve progress toward at least some of their student outcome objectives. Very likely, results as positive as these would be more prolific for the ten learner outcome goals if evaluation instruments more often bore close relationships to the thrust of local career education efforts.

Whereas these results demonstrate clearly the advantage of careful selection or construction of evaluation instruments, the practice of combining multiple outcomes in a single test tends to compromise the utility of evaluation results and therefore, should be avoided.

TABLE

Synthesis of Evaluation Results¹

Outcome Mixed

Number of projects assessing outcome 9

OCE: 3 Part D: 6

Approximate number of students involved in assessments 3400

As treatment group: 2900 As comparison group: 500

Number of studies 23

<u>Grade Level</u>	<u>Design</u>	<u>Sampling</u>
K-3: 5	Pre-post w/o comp: 15	Identified as treated: 11
4-6: 3	Post w/comp: 5	Randomly Selected: 12
7-9: 6	Pre-post w/comp: 3	
10-12: 9		

Number of studies with positive results significant at the .05 level² 10 (53%)

K-3: 2 (40%)	Pre-post w/o comp: 7 (64%)	Identified as treated: 5 (56%)
4-6: 1 (33%)	Post w/comp: 0	Randomly Selected: 5 (50%)
7-9: 4 (100%)	Pre-post w/comp: 3 (100%)	
10-12: 3 (43%)		

Number of studies with positive differences between means³ 18 (78%)

K-3: 4 (80%)	Pre-post w/o comp: 12 (80%)	Identified as treated: 8 (73%)
4-6: 2 (67%)	Post w/comp: 3 (60%)	Randomly Selected: 10 (83%)
7-9: 6 (100%)	Pre-post w/comp: 3 (100%)	
10-12: 6 (67%)		

Probability that positive and negative differences between means are equally likely <.005(+)

K-3: --	Pre-post w/o comp: .05(+)	Identified as treated: NS
4-6: --	Post w/comp: --	Randomly Selected: <.05(+)
7-9: <.05(+)	Pre-post w/comp: --	
10-12: NS		

¹ See page 7 for a clarification of the table.

² The number of studies with positive differences but no test of significance was subtracted from the denominator in calculating percentages.

³ Percentages based on the total number of studies.

SUMMARY CONCLUSIONS

Following is a brief status report of the career education movement's progress toward its learner outcome goals as evidenced by evaluation results from 45 recent programs:

Career education seeks to produce individuals who, when they leave school (at any age or at any level) are:

1. *Competent in the Basic Academic Skills Required for Adaptability in our Rapidly Changing Society.*

Overall, results are neither positive nor negative but in selected instances improvements were both statistically and educationally significant.

2. *Equipped with Good Work Habits*

Measured attitudes toward school were affected only in isolated instances. Data concerning work habits are largely lacking.

3. *Equipped with a Personally Meaningful Set of Work Values that Foster in Them a Desire to Work.*

Good evidence of success has been demonstrated in strengthening youngsters' desire to work.

4. *Equipped with Career Decision-Making Skills, Job-Hunting Skills, and Job-Getting Skills.*

Career decision-making skills were strengthened with great consistency. Data concerning job-seeking skills are sparse but somewhat promising.

5. *Equipped with Job Specific Occupational Skills and Interpersonal Skills at a Level that will Allow Them to Gain Entry into and Attain a Degree of Success in the Occupational Society.*

For several reasons career education evaluations rarely evaluate job specific occupational skills. Results of interpersonal skills evaluations are encouraging but not conclusive.

6. *Equipped with a Degree of Self-Understanding and Understanding of Educational-Vocational Opportunities Sufficient for Making Sound Career Decisions.*

Self-esteem is rarely affected as it is currently measured, and no objective data of self-understanding were reported. Career awareness was achieved in the overwhelming majority of cases and there is reason to believe that the intent of the goal is being met on a broad scale.

7. *Aware of Means Available to Them for Continuing and Recurrent Education.*

Evaluation results are lacking.

8. *Either Placed or Actively Seeking Placement in a Paid Occupation, in Further Education, or in a Vocation consistent with their Current Career Decisions.*

It is too early to measure career education's influence on this outcome on a wide-scale basis.

9. *Actively Seeking to Find Meaning and Meaningfulness Through Work in Productive use of Leisure Time.*

Only one study was reported; its results were promising.

10. *Aware of Means Available to Themselves for Changing Career Options-- of Societal and Personal Constraints Impinging on Career Alternatives.*

Evaluation results are sparse but very encouraging.

SPECIFICALLY REFERENCED PROJECTS

Project Title, Director and Address	Funding Source & Grant Number	Third-Party Evaluator
1. Project CELL (Career Education for Livelihood and Leisure) J. B. Wier, Director Pickens County Board of Education P.O. Box 32 Carrollton, Alabama 35447	OCE G007502290	No
2. A School-Community Career Education Project John W. Jackson, Director Opelika City Schools P.O. Box 2469 Opelika, Alabama 36801	Part D 0-73-5284	Yes
3. The Comprehensive Career Education System M. Gummar Pransen, Director Rockford Public Schools District 205 205 South Madison Street Rockford, Illinois 61101	OCE G007502397	Yes
4. The Careers Resource Project Joe W. Roth, Director Indiana SBVTE 401 Illinois Building 17 West Market Street Indianapolis, Indiana 46204	Part D 0-73-5312	Yes
5. Project Guidance in Vocations and Education (GIVE) Roy W. Bagley, Director MSAD #51 Cumberland Center, Maine 04021	OCE G007502238	Yes
6. Comprehensive Career Education Project Charles W. Ryan, Director University of Maine Orono, Maine 04473	OCE G007502355	Yes
7. Pontiac Adult-Student Learning System Kaye Jeter, Director School District of the City of Pontiac 350 Wide Track Drive Pontiac, Michigan 48505	Part D 0-73-5287	Yes

Project Title, Director and Address	Funding Source & Grant Number	Third-Party Evaluator
8. Career Education Program Geraldine T. Uzzell, Director Newark Board of Education 2 Cedar Street Newark, New Jersey 07102	OCE G007502350	Yes
9. District Eleven Career Education Model Ms. Winell Thomas, Project Director Community School District #11 1250 Arnow Avenue Bronx, New York 10469	OCE G007503732	Yes
10. Academic and World of Work Gap-Bridging Through Career Education William D. Frazier, Director Oklahoma State Department of Vocational and Technical Education 1515 West 6th Avenue Stillwater, Oklahoma 74074	Part D 0-73-5321	Yes
11. Comprehensive Career Education Model K-14 Stanley B. Cohen, Director School District of Philadelphia Parkway at 21st Street Philadelphia, Pennsylvania 19103	Part D 0-73-5273	Yes
12. Highline's Career Alternatives Model Ben A. Yormark Director Highline School District #401 15675 Ambaum Blvd., S.W. Seattle, Washington 98166	Part D 0-73-5289	Yes

APPENDIX A

Measurement Instruments

By Outcome

Outcome 1a: Reading Achievement

Instrument	Grades Where Used				Number of Studies		
	K-3	4-6	7-9	10-12	where used	w/ pos. diff. results at .05	w/ pos. diff. between means
California Achievement Test	X	X	X		8	2	2
Comprehensive Test of Basic Skills	X	X	X	X	1	0	0
Gates-MacGinitie Readiness Test	X				1	0	1
Iowa Test of Basic Skills --Level 10 Form S	X	X			2	0	1
Metropolitan Achievement Test --Total Reading	X	X	X		7	1	3
Science Research Associates --Achievement Series		X			1	1	1
Stanford Achievement Tests			X		1	0	1
Sequential Tests of Educational Progress				X	1	0	0

Outcome 1b: Mathematical Achievement

Instrument	Grades Where Used				Number of Studies		
	K-3	4-6	7-9	10-12	where used	w/ pos. diff. results at .05	w/ pos. diff. between means
California Achievement Test	X	X	X		8	3	7
Comprehensive Test of Basic Skills	X	X	X	X	1	0	1
Iowa Test of Basic Skills	X	X			2	0	0
Metropolitan Achievement Test --Total Math	X	X	X	X	7	3	3
Science Research Associates --Achievement Series F Total Math		X			1	0	0
Stanford Achievement Tests			X		1	0	0
Sequential Tests of Educational Progress				X	1	0	0

Outcome 2: Attitudes Toward School

	<u>Grades Where Used</u>				<u>Number of Studies</u>		
Instrument	K-3	4-6	7-9	10-12	where used	w/ pos. results at .05	w/ pos. diff. between means
Career Orientation Battery							
--Attitudes Toward School							
--Form 24	X				2	1	2
--Form 58		X			1	0	0
--Form 912			X	X	3	2	2
Coopersmith Self-Esteem Inventory							
--School	X	X	X	X	11	1	6
School Sentiment Index	X				1	0	0
Self Appraisal Inventory	X				3	0	2
--School		X	X		5	0	2
Self Observation Scales							
--School Affiliation							
--Primary	X				5	0	1
--Intermediate		X	X		6	0	2
--Achievement Motivation							
--Intermediate		X			2	0	1
Survey of School Attitudes	X	X			6	0	2

Outcome 3: Attitudes Toward Work

Instrument	Grades Where Used				Number of Studies		
	K-3	4-6	7-9	10-12	where used	w/ pos. results at .05	w/ pos. diff. between means
Career Maturity Inventory							
--Attitude Scale		X	X	X	34	2	20
Career Orientation Battery							
--Attitudes Toward Work							
--Form 24	X				2	0	2
--Form 58		X			1	1	1
--Form 912			X	X	3	0	3
The Valuing Approach to Career Education Test	X	X			2	2	2
New Mexico Career Education Test Series							
--Attitudes Toward Work				X	2	0	2

Outcome 4a: Career Decision-Making Skills

Instrument	Grades Where Used				Number of Studies		
	K-3	4-6	7-9	10-12	where used	w/ pos. results at .05	w/pos. diff. between means
Assessment of Career Development							
--Exploratory Occupational Experiences			X	X	5	1	3
--Career Planning Knowledge			X	X	8	2	5
--Career Planning Involvement			X	X	5	1	4
Career Development Inventory							
--Planning Orientation			X	X	14	6	11
--Resources for Exploration			X	X	17	5	11
--Composite Score			X		1	0	0
Career Maturity Inventory							
--Goal Selection		X	X	X	25	3	17
--Problem Solving		X	X	X	18	2	14
Career Orientation Battery							
--Decision-Making							
--Form 58	X				1	1	1
--Form 912			X	X	3	1	2
Inventory of Occupational Maturity	X				1	0	1
New Mexico Career Education Test Series							
--Career Oriented Activities Checklist				X	1	0	0
Local Unnamed	X				1	0	1

Outcome 4b: Job-Seeking/Getting Skills

Instrument	<u>Grades Where Used</u>				<u>Number of Studies</u>		
	K-3	4-6	7-9	10-12	where used	w/ pos. results at .05	w/ pos. diff. between means
Career Orientation Battery:							
--Job-Seeking Skills							
--Form 912			X	X	3	0	1
New Mexico Career Education Test Series							
--Job Application Procedures Test				X	2	0	2
Interview				X	1	1	1

Outcome 5b: Interpersonal Skills

Instrument	Grades Where Used				Number of Studies		
	K-3	4-6	7-9	10-12	where used	w/ pos. results at .05	w/ pos. diff. between means
Career Orientation Battery							
--Work Behavior-Form 912			X	X	3	0	3
Coopersmith Self-Esteem Inventory							
--Social Self	X	X	X	X	11	0	6
New Mexico Career Education Test Series							
--Career Development Test				X	2	0	2
Self Appraisal Inventory							
--Peers	X	X	X		8	0	4
Self Observation Scale							
--Social Maturity							
--Primary	X				5	1	4
--Intermediate		X	X		6	0	3
--Peer Affiliation							
--Intermediate		X	X		6	0	4

Outcome 6a: Self Appraisal/Self-Esteem

Instrument	Grades Where Used				Number of Studies		
	K-3	4-6	7-9	10-12	where used	w/ pos. results at .05	w/ pos. diff. between means
Career Maturity Inventory							
--Self Appraisal		X	X	X	19	2	11
Assessment of Career Development							
--Item 37			X	X	3	0	1
--Item 38			X	X	3	0	2
Career Orientation Battery							
--Self-Esteem							
--Form 24	X				2	1	2
--Form 58		X			1	0	1
--Form 912			X	X	3	1	2
Coopersmith Self-Esteem Inventory							
--General Self	X	X	X	X	11	0	3
--Total Score	X	X			5	2	3
How I See Myself							
--Elementary	X	X			4	0	2
--Secondary			X		2	0	0
Self-Observation Scale							
--Self Acceptance							
--Primary	X				5	0	3
--Intermediate		X	X		6	0	5
--Self Security							
--Primary	X				5	1	4
--Intermediate		X	X		6	0	3
--Self Confidence							
--Intermediate		X	X		6	0	5
I Feel . . . Me Feel	X				3	0	2
Self Concept and Motivation Inventory	X				2	0	2
Self Appraisal Inventory							
--General Self	X	X	X		8	0	4
--Total		X	X		6	1	3
Local Unnamed	X	X	X		6	1	3

Outcome 6b: Career Information

Instrument	Grades Where Used				Number of Studies		
	K-3	4-6	7-9	10-12	where used	w/ pos. results at .05	w/ pos. diff. between means
Assessment of Career Development							
--Occupational Characteristics			X	X	10	1	8
--Occupational Requirements			X	X	7	0	6
Box Score			X		1	0	1
Career Awareness Inventory							
--K-3	X				4	4	4
--4-6		X			8	3	7
--7-9			X		3	2	2
--10-12				X	3	3	3
Cornell Career Awareness Inventory		X			5	1	4
Career Development Inventory							
--Information and Decision-Making			X	X	20	3	14
Career Education Questionnaire	X	X	X		24	8	20
Career Knowledge Test #1		X	X		3	2	2
Career Knowledge Test #2	X				5	2	3
Career Maturity Inventory							
--Occupational Information		X	X	X	20	2	12
--Planning		X	X	X	25	2	19
Career Orientation Battery							
--Form 24 Technology	X				2	1	1
--Form 24 World of Work	X				2	2	2
--Form 58 Technology		X			1	0	1
--Form 58 World of Work		X			1	1	1
--Form 912 Technology			X	X	3	1	2
--Form 912 Job Requirements			X	X	3	1	3
--Form 912 Nature of Jobs			X	X	3	2	2
Job Skills Test			X		2	2	2
New Mexico Career Education Series							
--Knowledge of Occupations Test			X	X	3	0	0
Occupational Knowledge		X			3	0	2
Local Unnamed	70	X	X	X	11	4	8

Outcome 11: Mixed

Instrument	Grades Where Used				Number of Studies		
	K-3	4-6	7-9	10-12	where used	w/ pos. results at .05	w/ pos. diff. between means
Auto English				X	2	2	2
Career Education Inventory	X				2	2	2
Career Education Test		X			1	1	1
Exploration Test			X		1	1	1
Intermediate Career			X		2	2	2
Occupational Investigation Test			X		1	0	1
Tests with McKnight & McKnight Course			X	X	2	2	2
Texas Career Education Measure- ment Series Survey Test				X	3	0	1
Variable: World of Work				X	1	0	1
Local Unnamed	X	X	X	X	8	0	5

APPENDIX B

References for Measurement Instruments

MEASUREMENT INSTRUMENTS

Auto English

Ceres Model: Career Education Responsive to Every Student

John V. Avela, Project Director

Ceres Unified School District

6th and Lawrence Streets

Ceres, California 95307

or

Policy Studies in Education

475 Park Avenue, South

New York, New York 10016

Assessment of Career Development

Houghton Mifflin

One Beacon Street

Boston, Massachusetts 02107

Boxscore

Boxscore

Chronicle Guidance Publications

Moravia, New York 13118

California Achievement Test

CTB-McGraw Hill

DelMonte Research Park

Monterey, California 93940

Career Awareness Inventory

I Believe in Kids

Albert Thomas, Jr., Project Director

Jefferson County School Board

P.O. Box 499

Monticello, Florida 32344

Career Development Inventory

Donald Super

Teachers College

Columbia University

New York, New York 10027

Career Education Inventory

Coordinated Effort for Career Education

Dr. Sidney K. Peveto, Project Director

Grayson County College

6101 Highway 691

Denison, Texas 75020

Career Education Questionnaire

Minnesota Research Coordinating

Unit for Vocational Education

University of Minnesota

Minneapolis, Minnesota 55455

Career Education Test

Coordinated Effort for Career Education
Dr. Sidney K. Peveto, Project Director
Grayson County College
6101 Highway 691
Denison, Texas 75020

Career Knowledge Test (#1)

Highline's Career Alternatives Model
Dr. Ben A. Yormark, Project Director
Highline School District #401
15675 Ambaum Boulevard, S.W.
Seattle, Washington 98166

or

Bureau of School Services and Research
University of Washington
Seattle, Washington 98105

Career Knowledge Test (#2)

Evaluative Research Associates, Inc.
8444 Florissant Road
St. Louis, Missouri 63121

Career Maturity Inventory

CTB/McGraw Hill
DelMonte Research Park
Monterey, California 93940

Career Orientation Battery

New Educational Directions, Inc.
P.O. Box 307
Crawfordsville, Indiana 47933

Comprehensive Test of Basic Skills

CTB/McGraw Hill
DelMonte Research Park
Monterey, California 93940

Coopersmith Self Esteem Inventory

Self Esteem Institute
934 Dewing Avenue
Lafayette, California 94549

Cornell Career Awareness Inventory

Scholastic Testing Service
480 Meyer Road
Bensenville, Illinois 60106

Exploration Test

Coordinated Effort for Career Education
Dr. Sidney K. Peveto, Project Director
Grayson County College
6101 Highway 691
Denison, Texas 75020

Gates-MacGinitie Readiness Test

The Psychological Corporation
304 East 45th Street
New York, New York 10017

How I See Myself

Ira J. Gordon
2900 S.W. Second Court
Gainesville, Florida 32601

Intermediate Career

Ceres Model: Career Education Responsive to Every Student
John V. Avela, Project Director
Ceres Unified School District
6th and Lawrence Streets
Ceres, California 95307

or

Policy Studies in Education
475 Park Avenue, South
New York, New York 10016

Inventory of Occupational Maturity

Highline's Career Alternatives Model
Dr. Ben A. Yormark, Project Director
Highline School District #401
15675 Ambaum Boulevard, S.W.
Seattle, Washington 98166

or

Bureau of School Service and Research
University of Washington
Seattle, Washington 98105

Iowa Test of Basic Skills

Harcourt Brace Jovanovich, Inc.
757 Third Avenue
New York, New York 10017

Job Skills Test

Highline's Career Alternatives Model
Dr. Ben A. Yormark, Project Director
Highline School District #401
15675 Ambaum Boulevard, S.W.
Seattle, Washington 98166

or

Bureau of School Service and Research
University of Washington
Seattle, Washington 98105

Metropolitan Achievement Tests

Harcourt Brace Jovanovich, Inc.
757 Third Avenue
New York, New York 10017

New Mexico Career Education Test Series

Monitor
P.O. Box 2337
Hollywood, California 90028

Occupational Investigation Test

Coordinated Effort for Career Education
Dr. Sidney K. Peveto, Project Director
Grayson County College
6101 Highway 691
Denison, Texas 75020

Occupational Knowledge

R. W. Heath
Comprehensive Evaluation Project
U.S.O.E.
Contact #EC-9-099017-4424(010)

School Sentiment Index

Instructional Objectives Exchange
P.O. Box 24095
Los Angeles, California 90024

Science Research Associates Achievement Series

Science Research Associates
259 East Erie Street
Chicago, Illinois 60611

Self Appraisal Inventory

Instructional Objectives Exchange
P.O. Box 24095
Los Angeles, California 90024

Self Concept and Motivation Inventory

Person-O-Metrics, Inc.
Evaluation and Development Services
20504 Williamsburg Road
Dearborn Heights, Michigan 48127

Self Observation Scale

National Testing Service
2526 Erwin Road
Durham, North Carolina 27705

Sequential Tests of Educational Progress

Educational Testing Service
Princeton, New Jersey 08540

Stanford Achievement Tests

Harcourt Brace Jovanovich, Inc.
757 Third Avenue
New York, New York 10017

Survey of School Attitudes

Harcourt Brace Jovanovich, Inc.
757 Third Avenue
New York, New York 10017

Texas Career Education Measurement Series

Texas Education Agency
Westinghouse Learning Corporation
Measurement Research Center
201 East Eleventh Street
Austin, Texas 78701

The Valuing Approach to Career Education Test

Educational Planning and Evaluation Services
P.O. Box 689
Magnolia, Arkansas 71753

Variable: World of Work

Coordinated Effort for Career Education
Dr. Sidney K. Peveto, Project Director
Grayson County College
6101 Highway 691
Denison, Texas 75020

APPENDIX C

Policy Guidelines for
Part D Programs

POLICY GUIDELINES FOR PART D PROGRAMS

As the first three-year round of Vocational Exemplary Projects drew to a close, the U.S. Office of Education took steps to initiate a second three-year round. On August 28, 1972, the Bureau of Adult, Vocational, and Technical Education of the U.S. Office of Education issued Policy Paper No. AVTE-V72-10. This Policy Paper invited interested school districts and other organizations throughout the country to submit proposals for conducting research-based exemplary projects which would combine, in one operational setting, *all* of the following components:

1. Programs designed to increase the self-awareness of each student, to develop in each student favorable attitudes about the personal, social, and economic significance of work, and to assist each student in developing and practicing appropriate career decision-making skills.
2. Programs at the elementary school level designed to increase the career awareness of students in terms of the broad range of options open to them in the world of work.
3. Programs at the junior or middle school level designed to provide career orientation and meaningful exploratory experiences for students.
4. Programs at grade levels 10 through 14, designed to provide job preparation in a wide variety of occupational areas, with special emphasis on the utilization of work experience and cooperative education opportunities for all students.
5. Programs designed to insure the placement of all existing students in either: (a) a job, (b) a post-secondary occupational program, or (c) a baccalaureate program.